

Rec'd PCT/PTO

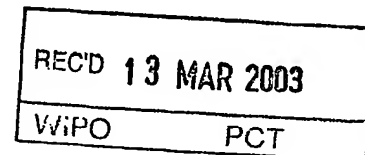
29 JUN 2003

REGISTRY OF PATENTS
SINGAPORE

PCT/SG03/00006

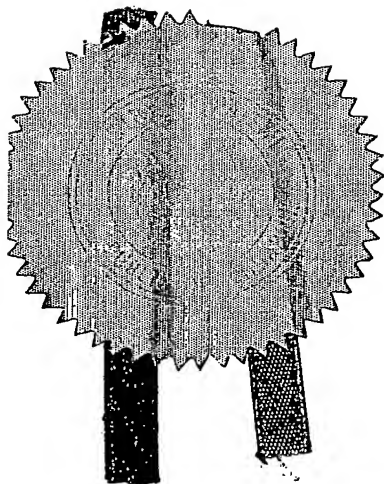
This is to certify that the annexed is a true copy of the following Singapore patent application as filed in this Registry.

Date of Filing : 30 DEC 2002
Application number : 200207849-1
Applicants : SINGAPORE AIRLINES LIMITED
Title of Invention : MULTI-LANGUAGE COMMUNICATION
METHOD AND SYSTEM



I further certify that the annexed documents are not, as yet, open to public inspection.

PRIORITY DOCUMENT
SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH
RULE 17.1(a) OR (b)



Chig Kam Tack (Mr)
Assistant Registrar
for REGISTRAR OF PATENTS
SINGAPORE

BEST AVAILABLE COPY

07 MAR 2003

INTELLECTUAL PROPERTY OFFICE OF SINGAPORE
REQUEST FOR THE GRANT OF A PATENT UNDER
SECTION 25



G00001



101101

* denotes mandatory fields

1. YOUR REFERENCE*

JIM/SYM/2022001-190901/at

2. TITLE OF
INVENTION*

Multi-Language Communication Method and System

3. DETAILS OF APPLICANT(S)* (see note 3)

Number of applicant(s)

1

(A) Name

Singapore Airlines Limited

Address

9-D Airline House, 25 Airline Road, Singapore 819829

State

Country

SG

☒

For corporate applicant



For individual applicant

State of incorporation

State of residency

Country of incorporation

SG

Country of residency



For others (please specify in the box provided below)

(B) Name

Address

State

Country

200207849-1

30 DEC 2002



☐

For corporate applicant

☐

For individual applicant

State of incorporation

State of residency

Country of incorporation

Country of residency

☐

For others (please specify in the box provided below)

(C) Name

Address

State

Country

☐

For corporate applicant

☐

For individual applicant

State of incorporation

State of residency

Country of incorporation

Country of residency

☐

For others (please specify in the box provided below)

☐

Further applicants are to be indicated on continuation sheet 1

4. DECLARATION OF PRIORITY (see note 5)

A. Country/country designated

File number

DD MM YYYY

Filing Date

B. Country/country designated

File number

DD MM YYYY

Filing Date

☐

Further details are to be indicated on continuation sheet 6

5. INVENTOR(S)* (see note 6)

A. The applicant(s) is/are the sole/joint inventor(s)

Yes

☐

No

☒200207849-1
30 DEC 2002

B. A statement on Patents Form will be furnished

Yes

☒

No

☐

6. CLAIMING AN EARLIER FILING DATE UNDER (see note 7)

☐

section 20(3)

☐

section 26(6)

☐

section 47(4)

Patent application number

DD MM YYYY

Filing Date

Please mark with a cross in the relevant checkbox provided below
(Note: Only one checkbox may be crossed.)

☐

Proceedings under rule 27(1)(a)

DD MM YYYY

Date on which the earlier application was amended

☐

Proceedings under rule 27(1)(b)

7. SECTION 14(4)(C) REQUIREMENTS (see note 8)

Invention has been displayed at an international exhibition.

Yes

☐

No

☒

8. SECTION 114 REQUIREMENTS (see note 9)

The invention relates to and/or used a micro-organism deposited for the purposes of disclosure in accordance with section 114 with a depository authority under the Budapest Treaty.

Yes

☐

No

☒

9. CHECKLIST*

(A) The application consists of the following number of sheets

i.	Request	<input type="text" value="7"/>	Sheets
ii.	Description	<input type="text" value="26"/>	Sheets
iii.	Claim(s)	<input type="text" value="9"/>	Sheets
iv.	Drawing(s)	<input type="text" value="4"/>	Sheets
v.	Abstract (Note: The figure of the drawing, if any, should accompany the abstract)	<input type="text" value="1"/>	Sheets
Total number of sheets		<input type="text" value="47"/>	Sheets

(B) The application as filed is accompanied by:

☐

Priority document(s)

☐

Translation of priority document(s)

☒

Statement of inventorship
& right to grant

☐

International exhibition certificate

10. DETAILS OF AGENT (see notes 10, 11 and 12)

Name

Firm

SHOOK LIN & BOK

11. ADDRESS FOR SERVICE IN SINGAPORE* (see note 10)

Block/Hse No.

Level No.

Unit No./PO Box

#18-00

Street Name

1 ROBINSON ROAD

Building Name

AIA TOWER

Postal Code

048542

12. NAME, SIGNATURE AND DECLARATION (WHERE APPROPRIATE) OF APPLICANT OR AGENT* (see note 12)
(Note: Please cross the box below where appropriate.)

☒

I, the undersigned, do hereby declare that I have been duly authorised to act as representative, for the purposes of this application, on behalf of the applicant(s) named in paragraph 3 herein.

Jeffrey Lim

Name and Signature

DD MM YYYY

30122002

NOTES:

1. This form when completed, should be brought or sent to the Registry of Patents together with the rest of the application. Please note that the filing fee should be furnished within the period prescribed.
2. The relevant checkboxes as indicated in bold should be marked with a cross where applicable.
3. Enter the name and address of each applicant in the spaces provided in paragraph 3.
Where the applicant is an individual
 - Names of individuals should be indicated in full and the surname or family name should be underlined.
 - The address of each individual should also be furnished in the space provided.
 - The checkbox for "For individual applicant" should be marked with a cross.
Where the applicant is a body corporate
 - Bodies corporate should be designated by their corporate name and country of incorporation and, where appropriate, the state of incorporation within that country should be entered where provided.
 - The address of the body corporate should also be furnished in the space provided.
 - The checkbox for "For corporate applicant" should be marked with a cross.
Where the applicant is a partnership
 - The details of all partners must be provided. The name of each partner should be indicated in full and the surname or family name should be underlined.
 - The address of each partner should also be furnished in the space provided.
 - The checkbox for "For others" should be marked with a cross and the name and address of the partnership should be indicated in the box provided.
4. In the field for "Country", please refer to the standard list of country codes made available by the Registry of Patents and enter the country code corresponding to the country in question.
5. The declaration of priority in paragraph 4 should state the date of the previous filing, the country in which it was made, and indicate the file number, if available. Where the application relied upon in an International Application or a regional patent application e.g. European patent application, one of the countries designated in that application [being one falling under section 17 of the Patents Act] should be identified and the country should be entered in the space provided.
6. Where the applicant or applicants is/are the sole inventor or the joint inventors, paragraph 5 should be completed by marking with a cross the 'YES' checkbox in the declaration (A) and the 'NO' checkbox in the alternative statement (B). Where this is not the case, the 'NO' checkbox in declaration (A) should be marked with a cross and a statement will be required to be filed on Patents Form 8.
7. When an application is made by virtue of section 20(3), 26(6) or 47(4), the appropriate section should be identified in paragraph 6 and the number of the earlier application or any patent granted thereon identified. Applicants proceeding under section 26(6) should identify which provision in rule 27 they are proceeding under. If the applicants are proceeding under rule 27(1)(a), they should also indicate the date on which the earlier application was amended.
8. Where the applicant wishes an earlier disclosure of the invention by him at an International Exhibition to be disregarded in accordance with section 14(4)(c), then the 'YES' checkbox at paragraph 7 should be marked with a cross. Otherwise, the 'NO' checkbox should be marked with a cross.
9. Where in disclosing the invention the application refers to one or more micro-organisms deposited with a depository authority under the Budapest Treaty, then the 'YES' checkbox at paragraph 8 should be marked with a cross. Otherwise, the 'NO' checkbox should be marked with a cross. Attention is also drawn to the Fourth Schedule of the Patents Rules.
10. Where an agent is appointed, the fields for "DETAILS OF AGENT" and "ADDRESS FOR SERVICE IN SINGAPORE" should be completed and they should be the same as those found in the corresponding Patents Form 41. In the event where no agent is appointed, the field for "ADDRESS FOR SERVICE IN SINGAPORE" should be completed, leaving the field for "DETAILS OF AGENT" blank.
11. In the event where an individual is appointed as an agent, the sub-field "Name" under "DETAILS OF AGENT" must be completed by entering the full name of the individual. The sub-field "Firm" may be left blank. In the event where a partnership/body corporate is appointed as an agent, the sub-field "Firm" under "DETAILS OF AGENT" must be completed by entering the name of the partnership/body corporate. The sub-field "Name" may be left blank.
12. Attention is drawn to sections 104 and 105 of the Patents Act, rules 90 and 105 of the Patents Rules, and the Patents (Patent Agents) Rules 2001.
13. Applicants resident in Singapore are reminded that if the Registry of Patents considers that an application contains information the publication of which might be prejudicial to the defence of Singapore or the safety of the public, it may prohibit or restrict its publication or communication. Any person resident in Singapore and wishing to apply for patent protection in other countries must first obtain permission from the Singapore Registry of Patents unless they have already applied for a patent for the same invention in Singapore. In the latter case, no application should be made overseas until at least 2 months after the application has been filed in Singapore, and unless no directions had been issued under section 33 by the Registrar or such directions have been revoked. Attention is drawn to sections 33 and 34 of the Patents Act.
14. If the space provided in the patents form is not enough, the additional information should be entered in the relevant continuation sheet. Please note that the continuation sheets need not be filed with the Registry of Patents if they are not used.

MULTI-LANGUAGE COMMUNICATION METHOD AND SYSTEM

FIELD OF THE INVENTION

5 The present invention relates to a multi-language communication method and system for communicating with and making announcements to a group of people, of particular but by no means exclusive application in communicating with aircraft passengers.

10 BACKGROUND OF THE INVENTION

With increased international travel, many carriers, particularly airlines, have placed great emphasis on the language expertise of their attendants. Airlines are particularly sensitive to differing passenger
15 profiles, which vary according to route and season, and attempt in many cases to concentrate cabin attendants with particular language skills on flights to and from the corresponding destination. For example, an airline based in an English speaking
20 country but flying into or out of Italy might endeavour to ensure that all cabin attendants speak Italian.

Further, announcements broadcast over the public
25 address system within an aircraft are commonly repeated in multiple languages. For a carrier based in an English speaking country, these might be English, the language of the place of origin of the flight and the language of the destination of the
30 flight. Some countries, on the other hand, have more than one national language, and all such announcements will generally be repeated in each of these.

- However, most airlines have insufficient crew or attendants with foreign language expertise to handle both the numbers of passengers with foreign language demands and the diversity of those foreign languages.
- 5 In some cases this difficulty is exacerbated by hiring criteria which limit the pool of adequately qualified crew and attendants, as language ability is only one recruitment criterion amongst many.
- 10 In addition, many passengers (particularly if elderly or infrequent travellers) are hesitant to seek assistance, whether by pressing a "call button" and attracting the attention of fellow passengers or otherwise, even if adequate language support is
- 15 available. They may be embarrassed by what they see as calling attention to themselves, or as demanding more than they are entitled to.

Further, playing announcements in multiple languages over the public address system annoys some passengers, who must wait until all the languages versions are complete before they can return to reading, working or partaking of in-flight entertainment. In addition, foreign-language speaking passengers may feel that

20 they are accorded a lower priority, being informed in their native language only after the principal language version (such as the English version) and possibly other foreign-language versions have been completed.

30

SUMMARY OF THE INVENTION

The present invention provides a multi-language communication method, comprising:

providing to each of said persons access to a plurality of language options;

receiving from each of one or more of said persons an indication of a respective choice of language chosen by said respective person from said language options;

storing said language choices in a database; and

making said language choices accessible by one or more applications so that said applications can when operated selectively provide output to each respective person in the respective language choice.

Preferably those of said persons who do not choose a language are assigned a language choice being a principal language.

The principal language is simply a default language, and will usually be a national language of the carrier on which the passengers are travelling.

Preferably said application is an announcement system for making an announcement in the form of a public announcement over a public address system in a principal language; and

making said announcement available to each person who has indicated a language choice in the form of a personal announcement over a respective personal address system in said respective language choice;

whereby a respective person who has chosen a language can access said personal announcement in their respective language choice by means of their respective personal address system.

In one embodiment, said application is an announcement system for making an announcement in the form of a public announcement by means of a public announcement system, wherein said announcement is presented by means of said public announcement system in at least each language choice.

Thus, the public announcement system could be a public address system with audio output, an electronic display, a combination of both, or any suitable alternative. The announcement can be made once per chosen language, even if more than one person has chosen a particular language. This avoids redundant repetition of the announcement.

For example, if there are 25 passengers and 10 choose Chinese, 8 choose English and 7 choose Japanese, an in-flight safety announcement or video presentation would be played once in Chinese, once in English and once in Japanese, that is, just enough languages to accommodate all passengers. The principal language would generally be included, even if not actually chosen by one or more passengers.

The present invention provides a multi-language communication method for making an announcement to a plurality of persons, comprising:

providing to each of said persons access to a plurality of language options;

receiving from each of one or more of said persons an indication of a respective choice of language chosen by said respective person from said

language options;

making said announcement in the form of a public announcement over a public address system in a principal language; and

5 making said announcement available to each person who has indicated a language choice in the form of a personal announcement over a respective personal address system in said respective language choice;

10 whereby a respective person who has chosen a language can access said personal announcement in their respective language choice by means of their respective personal address system.

15 In one embodiment, the plurality of persons are passengers, such as in an aircraft.

20 Thus, the principal language could be an official language of the country of origin of the majority of the persons or, in the case of an group of aircraft passengers, the country of origin of the airline. In some cases, there may be a plurality of principal languages (such as where the country of origin has more than one official language), in which case the public announcement can comprise the announcement
25 repeated in more than one language.

30 Preferably the method includes making said respective language choices accessible by an attendant so that said attendant can anticipate the language needs of a respective person.

Preferably the personal announcement comprises a prerecorded audio translation of the announcement in

the respective language choice of a respective person, played over one or more personal loudspeakers located proximate said respective person.

- 5 More preferably the personal announcement comprises a prerecorded audio translation of the announcement in the language choice of a respective person, accessible by means of a headphone or ear-piece output allocated to said respective person, whereby said respective
10 person can access said personal announcement by means of a headset connected to said output.

Alternatively, the announcement is an audio announcement and the method includes translating said
15 announcement by real-time computer translation into the respective language choice of a respective person to form the personal announcement, and playing said personal announcement over one or more personal loudspeakers located proximate said respective person.
20

In one embodiment the personal announcement comprises a prerecorded text translation of the announcement in the language choice of a respective person, accessible by means of a display allocated to said respective
25 person, whereby said respective person can read said personal announcement on said display.

Alternatively, the announcement is a text announcement and the method includes translating said announcement
30 by real-time computer translation into the respective language choice of a respective person to form the personal announcement, and making said personal announcement accessible by means of a display

allocated to said respective person, whereby said respective person can read said personal announcement on said display.

5 Thus, as the principal announcement is being made over
a public address system (such as a set of loudspeaker
in an aircraft cabin), those who have selected a
language can listen to the same announcement
(preferably simultaneously) in their language choice
10 through their headset, or read the personal
announcement on the display, or both. Translations
can be performed in advance (particularly for standard
announcements), or by means of real-time translation
software (particularly for non-standard
15 announcements).

Preferably the method also includes making said
announcement available to each of said persons who has
not indicated a language choice in the form of a
20 personal announcement over a personal address system
in said principal language.

Thus, those who do not select a language can still
listen to the announcement by means of, for example, a
25 headset but in the principal language.

Preferably said language options are provided to each
of said persons by means of a console having a display
(such as a screen) and a data entry device (such as a
30 keypad and/or touch-sensitive portions of a display),
configured to allow each respective person to select
said language option.

Preferably the console also provides access to a plurality of predefined service request options, so that each of said persons can request the corresponding service by means of said console.

5

Preferably said one or more persons who have indicated a language choice are presented with said service request options in the respective language choice, and each of said persons who has not indicated a language choice are presented with said service request options in said principal language.

10

Thus, a person (such as a passenger) may wish to request one of any number of possible services: for example, that an attendant attend them, that a (particular) drink or item of food be provided to them, that they are unwell, that they require a blanket, that a companion is unwell, or that do not wish to be disturbed.

15

20

Preferably the method also includes providing one or more personal messages to a respective one of said persons by means of said console, said messages being displayed in said language choice where said respective person has indicated such a language choice and in said principal language where said respective person has not indicated such a language choice.

25

In one embodiment, the method includes receiving from a respective one of said persons an indication of a temporary choice of language chosen by said person from said language options and applicable to a secondary location, and making said personal

30

announcement over a personal address system in said secondary location in said temporary language choice.

Thus, the secondary location could be a rest-room in,
5 for example, an aircraft. The person can indicate a language choice applicable to the rest-room, so that announcements made while that person is in the rest-room will be provided to that person in their language choice. The choice of language could be made in the
10 rest-room, or previously (such as from that person's seat). Indeed, the temporary choice can be made in (or when approaching or just outside) the rest-room by the person's providing identification information (such as a seat number), wherein the method includes
15 setting the temporary language choice to be that person's language choice.

Preferably the method includes setting the temporary language to be the principal language if said person
20 does not indicate a temporary choice of language.

The method may also include providing the secondary location with reset means (such a button or switch coupled to an announcement control system) so that the
25 temporary language can be reset to the principal language.

The present invention also provides a multi-language communication system for making an announcement to a
30 plurality of persons, comprising:

a database for storing a respective language choice of each of said persons;

a public address system for making said

announcement in the form of a public announcement in a principal language; and

5 a plurality of personal address systems, each for making said announcement available to a respective person in the form of a personal announcement in the respective language choice of that respective person;

10 a control system operable to select each of said personal announcements on the basis of said public announcement and said language choices, and to direct select each of said personal announcements to the corresponding personal address system of each respective person;

15 wherein said language choice of a respective person comprises said principal language where said person has not indicated a language choice, whereby each of said persons can access said personal announcement in their respective language choice.

20 Preferably said system includes a real-time translation module (such as a server provided with real-time translation software), for providing any one or more of: text to text, text to voice, voice to voice, and voice to text real-time translation, so
25 that said system can provide real-time translations of said announcement.

Thus, content (for example, the personal
30 announcements) can be prepared from the announcement in real time if desired. This module can also be used to translate other content, including messages from one or more of the plurality of persons.

Preferably said respective language choices are accessible by an attendant so that said attendant can anticipate the language needs of a respective person.

5 In one embodiment, the system includes a plurality of input devices, each allocated to a respective one of said persons, operable to input said respective language choice and to convey said choice to said database.

10

Thus, the language choice can be made on an aircraft from a passenger's seat.

15 Preferably the system is operable centrally to be input with a language choice of each of one or more of said persons, so that a system administrator can enter said languages choices.

20 Thus, a passenger, for example, could indicate a language choice when buying a ticket or obtaining a seat allocation, and this choice could be stored on behalf of the person (though the choice would preferably be overrideable by the passenger once in the aircraft). The default language choice would, as
25 above, be the principal language.

30 Preferably the system includes a prerecorded audio translation of the announcement in each available language choice, and is configured to play the appropriate audio translation corresponding to the respective language choice of a respective person over one or more personal loudspeakers located proximate said respective person.

More preferably the system includes a prerecorded audio translation of the announcement in each available language choice, and is configured to direct
5 said personal announcement to headphone or ear-piece output allocated to said respective person, whereby said respective person can access said personal announcement by means of a headset connected to said output.

10

Alternatively, the system includes a real-time translation module operable to prepare an audio translation of said announcement in each chosen language, said system being configured to play the
15 appropriate audio translation corresponding to the respective language choice of a respective person over one or more personal loudspeakers located proximate said respective person.

20 Preferably the system includes a prerecorded text translation of the announcement in each available language choice, and is configured to display the appropriate text translation corresponding to the respective language choice of a respective person on a
25 display allocated to said respective person.

Alternatively, the system includes a real-time translation module operable to prepare a text translation of said announcement in each chosen
30 language, said system being configured to display the appropriate text translation corresponding to the respective language choice of a respective person on a display allocated to said respective person.

In one embodiment, the system includes both audio and text translations of said announcement, and is operable to play a respective audio translation and display a respective text translation to a respective person.

Preferably the system includes for each of said persons a console for providing said language options said respective person, said console having a display (such as a screen) and a data entry device (such as a keypad and/or touch-sensitive portions of a display), wherein said console is configured to allow each respective person to select said language option.

Preferably the console also provides access to a plurality of predefined service request options, so that each of said persons can request the corresponding service by means of said console.

The present invention still further provides a multi-language communication method for communicating with a plurality of passengers, comprising:

providing to each of said passengers access to a plurality of language options;

receiving from each of one or more of said persons an indication of a respective choice of language chosen by said respective person from said language options; and

providing to each of said passengers who has chosen a language access to content in his or her respective language of choice.

Preferably the method includes providing to each of said passengers who has not chosen a language access to content in a principal language.

- 5 The content may be promotional material, educational material, entertainment, safety announcements, subtitles for movies, closed captioning, or otherwise, and could be provided by means of, for example, a visual display, an audio output device (such as a
10 headset), or both. Thus, a carrier (such as an airline) can provide passengers with information or other content in each passenger's language of choice.

- 15 Preferably the method includes making said respective language choices accessible by a passenger attendant so that said attendant can anticipate the language needs of a respective passenger.

- 20 Preferably the method includes providing at least one announcement to each of said passengers by means of a personal address system, wherein said announcement is in the respective language of choice of each passenger or, or, if no language was chosen by a respective passenger, in said principal language.

- 25 The announcement can be a text announcement displayed for each respective passenger on a display assigned to that respective passenger.

- 30 The announcement can be an audio or audio announcement directed for each respective passenger to an audio output assigned to that respective passenger, whereby each passenger can listen to said announcement, such

as by means of a headset. More preferably the method includes making said announcement in the form of a public announcement in said principal language over a public address system.

5

The present invention still further provides a multi-language communication system for communicating with a plurality of passengers, comprising:

10 a database for storing a respective language choice of each of said passengers;

15 a control system operable to retrieve said language choices from said database and operable to provide each of said passengers with access to content in his or her respective language of choice or, if no language was chosen by a respective passenger, in a principal language;

20 a plurality of output devices, each assigned to a respective passenger for providing said content to said respective passenger in his or her respective language of choice or, if no language was chosen by a respective passenger, in a principal language.

25 Preferably said respective language choices are accessible by a passenger attendant so that said attendant can anticipate the language needs of a respective passenger.

30 Preferably said output device is a display, an audio output device (such as a headset), or both.

The system preferably includes a plurality of consoles, each assigned to a respective passenger and operable by said passenger to make their respective

language choice from a plurality of language options, and to communicate said respective language choice to said database.

- 5 Preferably the system includes a plurality of personal address systems, each assigned to a respective passenger for providing at least one announcement to each of said passengers, wherein said announcement is in the respective language of choice of each passenger
10 or, or, if no language was chosen by a respective passenger, in said principal language.

The announcement can comprise visual material (such as text or text mixed with graphical elements)
15 displayable for each respective passenger on a display assigned to that respective passenger.

The announcement can be an audio announcement directed for each respective passenger to an audio output
20 assigned to that respective passenger, whereby each passenger can listen to said announcement, such as by means of a headset. More preferably the system includes a public address system for making said announcement in the form of a public announcement to
25 said passengers in said principal language.

Preferably said system is operable to receive said language choices from an operator who has received the respective language choices from one or more of the
30 passengers.

Thus, language choices could be provided at check-in and loaded into the database for later access by the

control system or attendants.

BRIEF DESCRIPTION OF THE DRAWINGS

5 In order that the present invention may be more clearly ascertained, a preferred embodiment will now be described, by way of example, with reference to the accompanying drawings, in which:

10 Figure 1 is a schematic diagram of an in-flight multi-language announcement system according to a preferred embodiment of the present invention; and

Figure 2 is a view of the personal display of the system of figure 1, displaying a language option menu;

15 Figure 3 is a view of the personal display of the system of figure 1, displaying a menu of items that can be ordered from a cabin attendant; and

20 Figure 4 is a view of the personal display of the system of figure 1, displaying a free-text field for sending a message to a cabin attendant.

DETAILED DESCRIPTION

An in-flight multi-language announcement system according to a preferred embodiment of the present invention is shown schematically at 10 in figure 1. 25 The system 10 includes a headend server 12, a cabin management terminal 14 for operating and accessing server 12, a plurality of galley terminals 16 (principally for receiving food and drink requests), and a public address system 18 to allow cabin crew to 30 make announcements throughout the aircraft cabin to the passengers (whether "live" or translated in real-time by translation software on server 12 into one or more chosen languages) and to broadcast prerecorded

announcements to the passengers.

It should be noted that galley terminals 16, although principally intended to provide communication with galley personnel as necessary for performing their tasks, are provided with full cabin management terminal functionality. This functionality can be used if required, such as if cabin management terminal 14 is malfunctioning or, for some reason, inaccessible. In addition, each galley terminal 16 can optionally be provided with any other desired application software.

System 10 also includes a plurality of personal seat monitors 20, one assigned to each passenger, each comprising a display 22 and a control console 24. Each display 22 can be operated by a means of its corresponding console 24. Each display 22 is optionally a "touch-screen" display and, if so, many of its functions can additionally be operated by touching the appropriate portion of the display.

Furthermore, system 10 includes a plurality of personal audio outputs 26 (typically an audio jack), one for each passenger, so that each passenger can connect a headset to the audio output in order to listen to music, movie soundtracks or other audio content.

Referring to figure 2, when a passenger first activates his or her monitor 20, the passenger is presented on his or her display 22 with a list of available language options. These options or in

written form in the appropriate language and script in each case.

5 The passenger selects the preferred language option
either by means of his or her console 24 (or, if a
touch-screen display is provided, by touching the
relevant portion of display 22), and this language
choice is then communicated to and stored in a
10 database in server 12. This database records the
language choice against the seat allocation from which
the language choice was received. Those passengers
who do not chose a language are assigned as a default
the principal language of the flight, commonly English
but dependent on the country in which the airline is
15 based. However, such passengers (and, indeed,
passengers who have chosen a language) can return to
the list of language options shown in figure 2 at any
time, and either choose a language as described above
or update an earlier choice of language by essentially
20 the same method.

Thereafter, announcements and other language-dependent
material accessible by means of monitor 20 and
displayable on display 22 are customized to the
25 respective language choice of each passenger. This
also includes instructions and the like displayed on
each display 22 and transmitted to each audio output
26 concerning the use of the monitors 20 and the other
facilities on the aircraft.

30

Thus, in-flight content, such as entertainment,
information or promotional material, commonly includes
audio or text components. These text components can

be, for example, information about the aircraft, services available on the aircraft or offered by the airline, safety, travel destinations or meal menus. These text components are displayed in each case on display 22 in the language choice of the respective passenger. This is accomplished by providing server 12 with multiple versions of each piece of content, each in one of the language options available to the passengers, including the principal language.

Alternatively, however, server 12 can be provided with a single master version of each piece of content (typically in the principal language); the master version of a requested piece of content is then translated in real-time by the aforementioned translation software on server 12 into the chosen language of each respective passenger to whom the content is to be delivered.

Other material or content may not normally have a text component but might have an optional text component. Such material includes movies, television programs, instructions items and other audiovisual entertainment, in which sub-titles may optionally be requested. If a passenger has selected, for example, Chinese and a particular movie - though otherwise available - is unavailable in a Chinese version, then an available version (such as English) will be displayed when requested by the passenger, but with Chinese sub-titles. Alternatively, if a Chinese version is available, the selection of a particular movie by a passenger who has previously indicated Chinese as their language of choice will automatically

prompt the Chinese version to be played.

5 These multiple versions of lengthier content may be
stored in any suitable form. In this embodiment they
are stored in digitized form on server 12, or
alternatively on magnetic or optical media playable on
a suitable reader (such as a VCR, a DVD player, a PC
with CD or DVD drive or a CD or DVD drive in server
12) that is controllable by server 12, and whose
10 outputs are selectively couplable to each monitor 20.

Public announcements (i.e. those broadcast over the
public address system 18, which can include a large,
shared screen for displaying visual content), which
15 include important safety announcements and information
concerning imminent arrival at the destination, are
broadcast in the principal language over the public
address system 18 and in the respective language
choice of each passenger over the respective audio
20 output 26 of each passenger. Visual versions of such
announcements (comprising text and/or graphical
material) may additionally be displayed on each
passenger's corresponding visual display 22, with any
text component in each respective passenger's chosen
25 language. Consequently, each passenger can listen to
such content by means of a headset plugged into his or
her audio output 26 (and optionally view the visual
version). For example, a safety announcement might be
in English when broadcast over the public address
30 system 18, but be heard simultaneously in Japanese
through a headset plugged into the audio output 26 of
a particular passenger that has chosen Japanese. The
text of the announcement can optionally be displayed

in Japanese on that particular passenger's display 22.

It may optionally be desired, despite the above facility, to ensure that the most important
5 announcements are available to all passengers by means of the public address system 18. Some passengers, for example, may not be wearing their headset early in a flight. If so, such important announcements can be repeated just enough times so that a version in every
10 language actually chosen by any passenger is played. Alternatively, multiple language versions of the same announcement can be displayed simultaneously on a suitable screen or screens visible to all. In either case, the required number of versions will almost
15 always be many fewer than the number of passengers. The principal language version will generally either have been chosen by at least one passenger or assigned to at least one passenger (through their not choosing a language), so a version of the announcement in the
20 principal language will also be played. However, it will generally be desirable to play the principal language version even if no one chooses or is assigned the principal language.

25 It should also be noted that this can also be done in the airport, such as at the gate where passengers are waiting to board. If the language choices have been made earlier (such as at check-in), as will be discussed below, announcement made to the gate area
30 can be repeated in all requisite languages.

Each passenger may also communicate with a cabin attendant by means of a further screen displayable on

that passenger's respective display 22. Referring to figure 3, a passenger can use his or her respective console 24 to display on display 22 as screen 30 a list of items and services that can be requested from a cabin attendant. This screen 30, though illustrated with English text in figure 3, is in the chosen language of the respective passenger. Thus, using either console 24 or by touching the relevant portion of the display 22, the passenger can request items such as a newspaper, a pair of slippers, a drink, a snack, etc. In addition, screen 30 includes a "Call Attendant" field 32 which, when touched by the passenger or selected by means of the passenger's console 24, operates in the same manner as the passenger's call button to summon an attendant.

Referring to figure 4, in much the same way, a passenger can display screen 34 on his or her display 22. The instructions in screen 34 are in again the chosen language of the passenger (though, by way of example, in English as shown in figure 4). Screen 34 includes a free-text field 36, in which the passenger can enter text by means of that passenger's console 24, in the passenger's chosen language. This may, in some embodiments, be limited by the number of characters that can be produced by means of the keys of console 24. Optionally, console 24 can be provided with a microphone so that the passenger can dictate text to be entered into free-text field 36, whereby the words spoken by the passenger are converted into text by means of speech recognition software resident on server 12.

Once the required text has been entered into free-text field 36, the passenger activates (by touching or using console 24) the SEND button 38 to transmit the message in free-text field 36. Screen 34 also
5 includes a "Call Attendant" field 40.

With both screen 30 and screen 34 of figure 3 and 4 respectively, when a passenger submits a request for an item or service, sends some free-text or summons an
10 attendant, the passenger's monitor 20 transmits the relevant request to the most appropriate destination. Thus, if a passenger requests a snack by means of screen 30, that request is sent to a galley terminal 16 in the galley responsible for that passenger.
15 Although the passenger views screen 30 in their chosen language, the request appears on the gallery terminal 16 in the principal language so that it can readily be interpreted by the relevant member of the cabin crew.

20 On the other hand, free-text entered in field 36 is sent to and displayed on cabin management terminal 14, having first been translated by means of the aforementioned translation software on server 12 into the principal language. For example, a French speaker
25 might can send a free text request reading "please wake me an hour from our destination" in French, but this request will be displayed on cabin management terminal 14 in the principal language, such as English. The cabin attendants need not necessarily,
30 therefore, speak the passenger's language (in this example, French).

Similarly, a cabin attendant can operate cabin

management terminal 14 or a galley terminal 16 to send free-text messages and certain pre-programmed messages (both audio and in text form) to one of more selected passenger monitors 20 and/or audio outputs 26. If in the form of free-text, the message is translated by means of translation software on server 12 into the chosen language of each respective passenger before being displayed on their displays 22. If selected from a menu of prerecorded text or audio messages, the appropriate language version is transmitted to the respective display 22 and/or audio output 26. Importantly, therefore, the cabin attendant does not have to consider the language spoken by each passenger, as this is handled automatically by server 12 when forwarding the appropriate message or announcement.

Although, as discussed above, each passenger is responsible choosing and entering their preferred language, this information can be input by cabin attendants through cabin management terminal 14. This might be desired if, for example, a cabin attendant becomes aware that a particular passenger has been unable to operate his or her monitor 20 or has forgotten to do so. Indeed, this task can also be performed by ground crew through the booking, check-in or seat allocation systems. For example, a passenger could be asked, when booking a ticket, what the preferred language would be for announcements and the like in-flight, and the response can be entered into a central database. The relevant information is then copied to the corresponding database on server 12 of a particular flight. Thereafter each passenger can

modify that selection but in many cases would have no need to do so. A passenger would then automatically be played safety announcements, etc., before and after take-off in their chosen language without having to
5 operate their monitor 20. Information concerning the preferred language can also be tagged according to the passenger's "frequent flyer" membership number or airline club membership number so that their language
10 choice is preserved for future flights and automatically loaded into each subsequent aircraft's server 12.

Modifications within the scope of the invention may be readily effected by those skilled in the art. It is
15 to be understood, therefore, that this invention is not limited to the particular embodiments described by way of example hereinabove.

MULTI-LANGUAGE COMMUNICATION METHOD AND SYSTEM

CLAIMS

5 THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A multi-language communication method, comprising:
 - providing to each of said persons access to a plurality of language options;
 - 10 receiving from each of one or more of said persons an indication of a respective choice of language chosen by said respective person from said language options;
 - storing said language choices in a database;
 - 15 and
 - making said language choices accessible by one or more applications so that said applications can when operated selectively provide output to each respective person in the respective language choice.
 - 20
2. A method as claimed in claim 1, wherein those of said persons who do not choose a language are assigned a language choice being a principal language.
- 25 3. A method as claimed in claim 1, wherein said application is an announcement system for making an announcement in the form of a public announcement over a public address system in a principal language; and
 - making said announcement available to each
 - 30 person who has indicated a language choice in the form of a personal announcement over a respective personal address system in said respective language choice;
 - whereby a respective person who has chosen a

language can access said personal announcement in their respective language choice by means of their respective personal address system.

5 4. A method as claimed in claim 1, wherein said
application is an announcement system for making an
announcement in the form of a public announcement by
means of a public announcement system, wherein said
announcement is presented by means of said public
10 announcement system in at least each language choice.

5. A multi-language communication method for making
an announcement to a plurality of persons, comprising:
providing to each of said persons access to a
15 plurality of language options;

receiving from each of one or more of said
persons an indication of a respective choice of
language chosen by said respective person from said
language options;

20 making said announcement in the form of a
public announcement over a public address system in a
principal language; and

making said announcement available to each
person who has indicated a language choice in the form
25 of a personal announcement over a respective personal
address system in said respective language choice;

whereby a respective person who has chosen a
language can access said personal announcement in
their respective language choice by means of their
30 respective personal address system.

6. A method as claimed in claim 5, including making
said respective language choices accessible by an

attendant so that said attendant can anticipate the language needs of a respective person.

5 7. A method as claimed in claim 5, wherein said personal announcement comprises a prerecorded audio translation of said announcement in the respective language choice of a respective person, played over one or more personal loudspeakers located proximate said respective person.

10

8. A method as claimed in claim 7, wherein said personal announcement comprises a prerecorded audio translation of said announcement in the language choice of a respective person, accessible by means of
15 a headphone or ear-piece output allocated to said respective person, whereby said respective person can access said personal announcement by means of a headset connected to said output.

20 9. A method as claimed in claim 5, wherein said announcement is an audio announcement and said method includes translating said announcement by real-time computer translation into the respective language choice of a respective person to form said personal
25 announcement, and playing said personal announcement over one or more personal loudspeakers located proximate said respective person.

30 10. A method as claimed in claim 5, wherein said personal announcement comprises a prerecorded text translation of said announcement in the language choice of a respective person, accessible by means of a display allocated to said respective person, whereby

said respective person can read said personal announcement on said display.

5 11. A method as claimed in claim 5, wherein said announcement is a text announcement and said method includes translating said announcement by real-time computer translation into the respective language choice of a respective person to form said personal announcement, and making said personal announcement
10 accessible by means of a display allocated to said respective person, whereby said respective person can read said personal announcement on said display.

15 12. A method as claimed in claim 5, including making said announcement available to each of said persons who has not indicated a language choice in the form of a personal announcement over a personal address system in said principal language.

20 13. A multi-language communication system for making an announcement to a plurality of persons, comprising:
a database for storing a respective language choice of each of said persons;
a public address system for making said
25 announcement in the form of a public announcement in a principal language; and
a plurality of personal address systems, each for making said announcement available to a respective person in the form of a personal announcement in the
30 respective language choice of that respective person;
a control system operable to select each of said personal announcements on the basis of said public announcement and said language choices, and to

direct select each of said personal announcements to the corresponding personal address system of each respective person;

5 wherein said language choice of a respective person comprises said principal language where said person has not indicated a language choice, whereby each of said persons can access said personal announcement in their respective language choice.

10 14. A system as claimed in claim 13, including a real-time translation module for providing any one or more of: text to text, text to voice, voice to voice, and voice to text real-time translation, so that said system can provide real-time translations of said
15 announcement.

15 15. A system as claimed in claim 14, wherein said module comprises a server provided with real-time translation software.

20 16. A system as claimed in claim 13, wherein said respective language choices are accessible by an attendant so that said attendant can anticipate the language needs of a respective person.

25 17. A system as claimed in claim 13, including a prerecorded audio translation of the announcement in each available language choice, and is configured to play the appropriate audio translation corresponding
30 to the respective language choice of a respective person over one or more personal loudspeakers located proximate said respective person.

18. A system as claimed in claim 13, including a real-time translation module operable to prepare an audio translation of said announcement in each chosen language, said system being configured to play the appropriate audio translation corresponding to the respective language choice of a respective person over one or more personal loudspeakers located proximate said respective person.

19. A system as claimed in claim 13, including a real-time translation module operable to prepare a text translation of said announcement in each chosen language, said system being configured to display the appropriate text translation corresponding to the respective language choice of a respective person on a display allocated to said respective person.

20. A system as claimed in claim 13, including a console having a display and a data entry device for each of said persons for providing said language options to each of said persons and to allow each respective person to select said language option.

21. A system as claimed in claim 13, including a console having a display and a data entry device for each of said persons, each of said consoles providing access to a plurality of predefined service request options, so that each of said persons can request the corresponding service by means of said console.

22. A multi-language communication method for communicating with a plurality of passengers, comprising:

providing to each of said passengers access to a plurality of language options;

receiving from each of one or more of said persons an indication of a respective choice of language chosen by said respective person from said language options; and

providing to each of said passengers who has chosen a language access to content in his or her respective language of choice.

10

23. A method as claimed in claim 22, including providing to each of said passengers who has not chosen a language access to content in a principal language.

15

24. A method as claimed in claim 22, wherein said content comprises any one or more selected from the set comprising: promotional material, educational material, entertainment, safety announcements, subtitles for movies and closed captioning.

20

25. A method as claimed in claim 22, including providing at least one announcement to each of said passengers by means of a personal address system, wherein said announcement is in the respective language of choice of each passenger or, or, if no language was chosen by a respective passenger, in a principal language.

25

26. A multi-language communication system for communicating with a plurality of passengers, comprising:

30

a database for storing a respective language

choice of each of said passengers;

5 a control system operable to retrieve said language choices from said database and operable to provide each of said passengers with access to content in his or her respective language of choice or, if no language was chosen by a respective passenger, in a principal language;

10 a plurality of output devices, each assigned to a respective passenger for providing said content to said respective passenger in his or her respective language of choice or, if no language was chosen by a respective passenger, in a principal language.

15 27. A system as claimed in claim 26, wherein said respective language choices are accessible by a passenger attendant so that said attendant can anticipate the language needs of a respective passenger.

20 28. A system as claimed in claim 26, wherein said output device is a display, an audio output device, or both a display and an audio output device.

25 29. A system as claimed in claim 26, wherein said announcement comprises visual material displayable for each respective passenger on a display assigned to that respective passenger.

30 30. A system as claimed in claim 26, wherein said announcement comprises an audio announcement directed for each respective passenger to an audio output assigned to that respective passenger, whereby each passenger can listen to said announcement, such as by

means of a headset.

31. A system as claimed in claim 26, including a
public address system for making said announcement in
5 the form of a public announcement to said passengers
in said principal language.

32. A system as claimed in claim 26, wherein said
system is operable to receive said language choices
10 from an operator who has received the respective
language choices from one or more of the passengers.

MULTI-LANGUAGE COMMUNICATION METHOD AND SYSTEM

ABSTRACT

5

The invention provides a multi-language communication method, comprising: providing to each of the persons access to a plurality of language options; receiving from each of one or more of the persons an indication of a
10 respective choice of language chosen by the respective person from the language options; storing the language choices in a database; and making the language choices accessible by one or more applications so that the applications can when operated selectively provide output
15 to each respective person in the respective language choice.

Figure 1

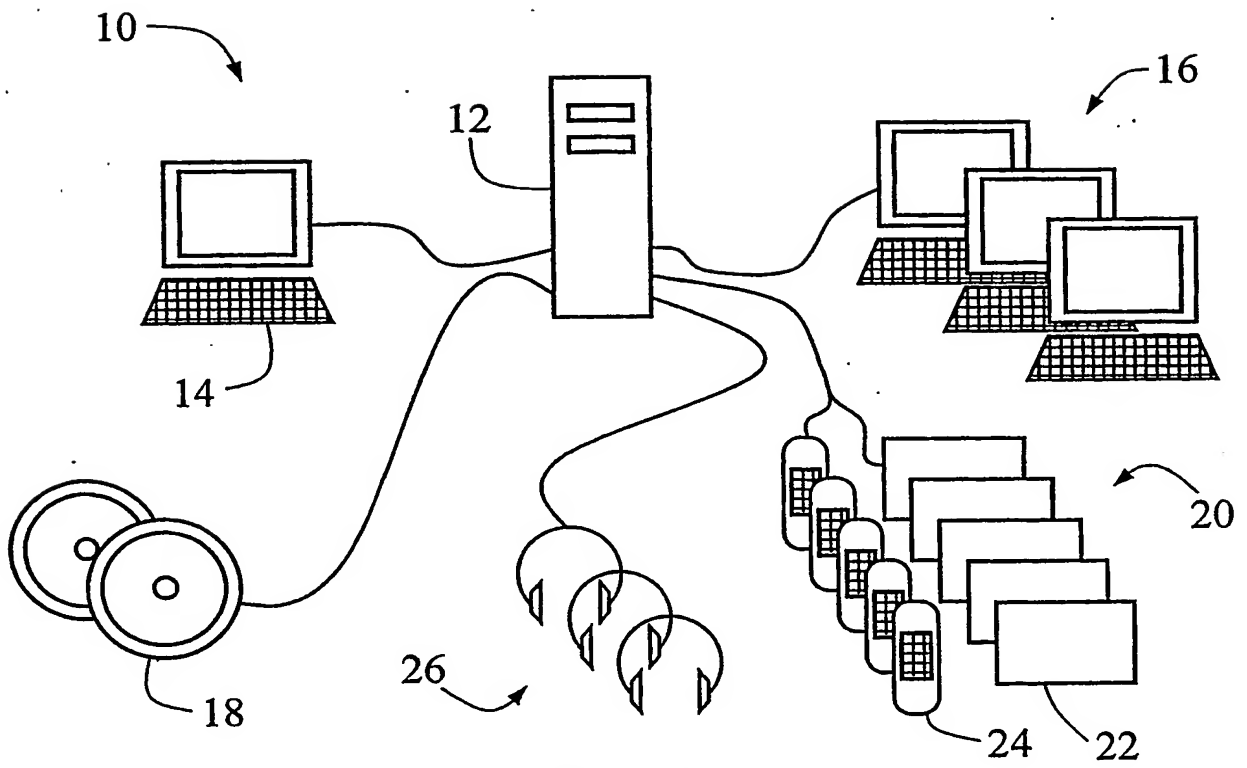


Figure 1

22

Welcome

English	Français	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Select a language for announcements and information</div> <p style="text-align: center;">More languages:</p> <div style="display: flex; justify-content: center; gap: 10px;">BackNext</div>
Deutsch	Español	
中文/汉语	Portugese	
Bahasa Malaysia	ihndi	
日本語	Bahasa Indonesian	

Figure 2

30

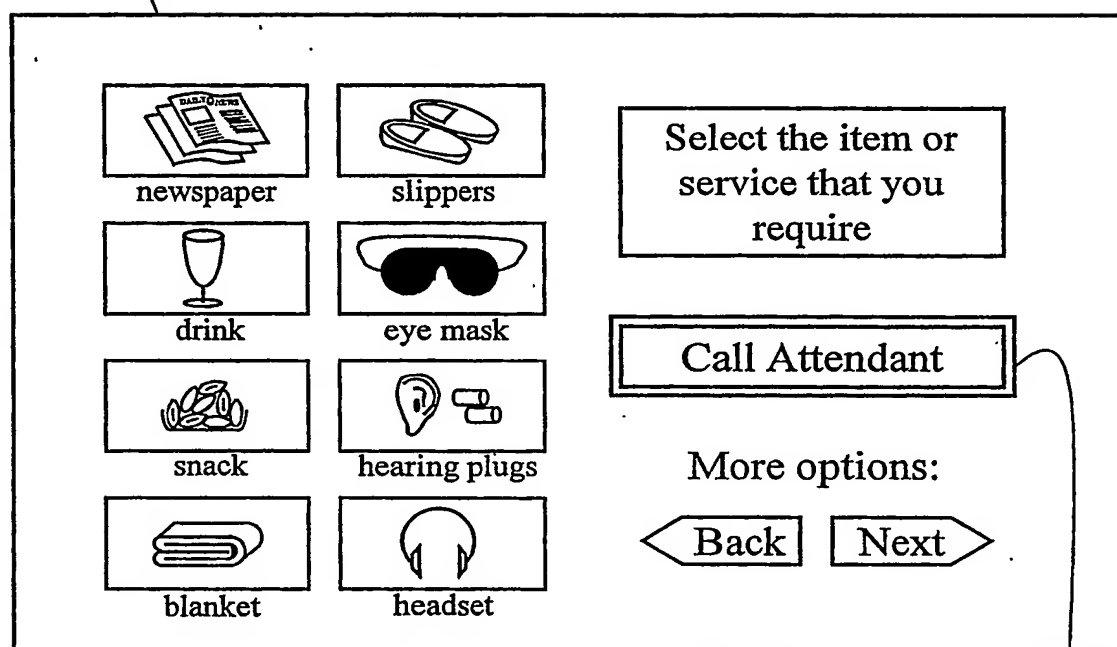


Figure 3

32

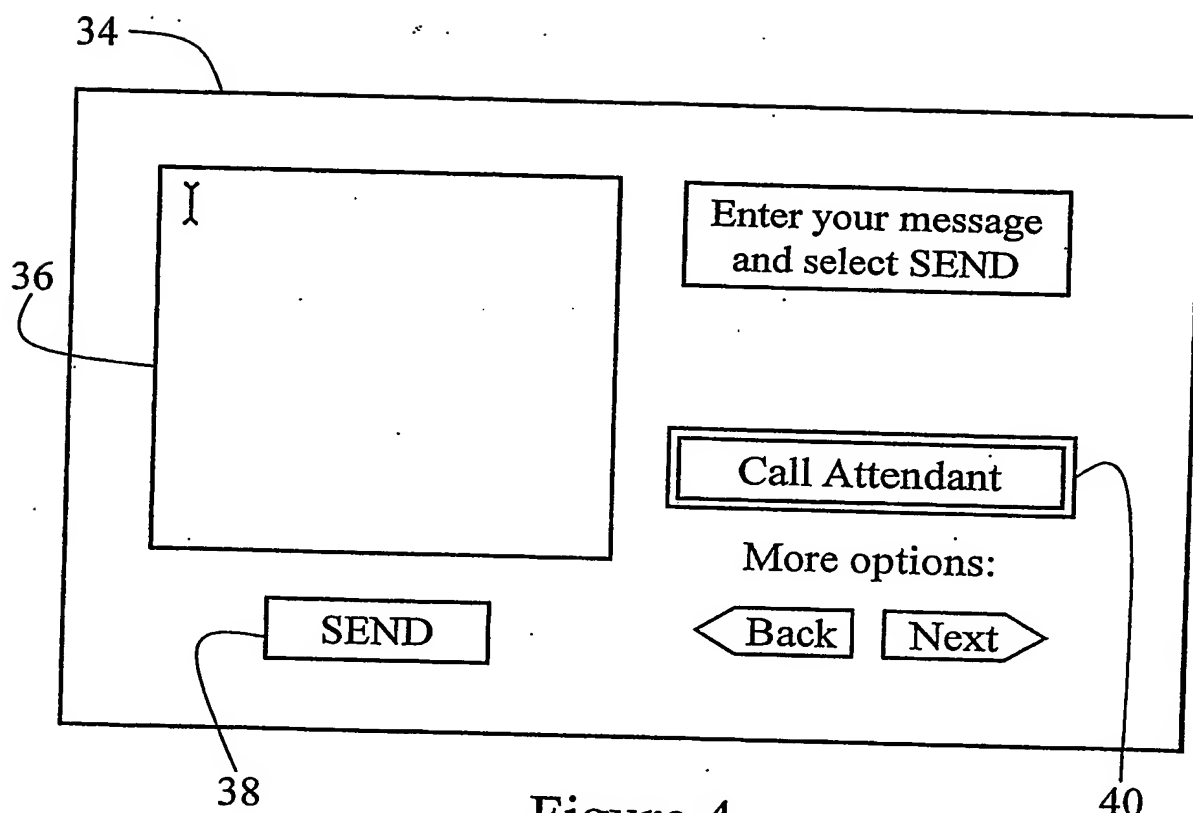


Figure 4